

**REMARKS**

Upon entry of the amendment, claims 1-9 will be all the claims pending in the application.

Claim 9 is supported by the description at page 10, line 20 through page 11, line 3 of the specification. As explained therein, the phrase "substantially free," in the context of new claim 9, connotes that no high molecular weight polyethylene is intentionally added to the polymeric matrix of the surface layer, but high molecular weight polyethylene may be present as an unintended impurity in very small amounts, *e.g.*, less than 1 wt% of the total polymer in the polymeric matrix.

**I. Paragraph No. 1: Objection to the Specification**

The sixth full paragraph at page 6 of the application has been deleted and replaced with a new paragraph indicating the updated status of U.S. Serial No. 09/079,807. Accordingly, the withdrawal of this objection is respectfully requested. OK

**II. Paragraph No. 3: Rejection Under 35 U.S.C. § 103**

Claims 1-4 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 5,968,643 to Topolkaraev, *et al.* ("Topolokaraev").

**Applicants' Response**

Applicants respectfully traverse. Topolkaraev does not disclose or suggest the biaxially oriented film as presently claimed.

The claimed film comprises a porous high density polyethylene (HDPE) surface layer. The surface layer has a coating thereon, wherein the coating consists essentially of a silicone glycol composition. Therefore, an essential structural feature of the claimed film is the arrangement of a coating on a surface layer. An essential compositional feature of the claimed

film is the compositional make-up of the coating; specifically, the coating consists essentially of a silicone glycol composition. The arrangement of a coating on a surface layer and the compositional make-up of that coating are two important elements of the claimed film that cannot be overlooked in the determination of patentability.

#### Structural Distinction

Topolkaraev discloses a microporous film produced from a source material (*see*, column 4, lines 29-31). The source material may contain small amounts of processing additives, such as acid scavengers, organosilicone compounds, silicone glycol copolymers, olefinic elastomers, low molecular weight paraffins, etc (*see*, column 5, lines 32-42).

In another embodiment, Topolkaraev's source material may include a further supplemental material, such as filler, a surfactant or some other surface-active material (*see*, column 5, lines 43-46). For example, the filler of Topolkaraev may be modified by a surfactant (*see*, column 7, lines 29-36). It must be noted that at paragraph No. 3 (page 2) of the Action, the Examiner points out that Topolkaraev teaches a microporous film containing silicon glycol copolymer surfactant (the Examiner refers to column 8, lines 23-25). As is made clear by the disclosure leading up to column 8, lines 23-25 (*see*, column 7, line 29 through column 8, line 22), Topolkaraev is actually suggesting that surfactants, including silicon glycol copolymers, ethylene glycol oligomers, acrylic acid, etc., may modify the filler, or be otherwise blended or incorporated (compounded) into the source material (*see*, column 7, lines 29-55).

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Thus, Topolkaraev's processing additives and supplemental materials are compounded into the source material to provide the films of Topolkaraev. For example, in Topolkaraev's inventive Examples 1, 2, and 4 (according to Topolkaraev, Examples 1, 2, and 4 are inventive, whereas Examples 5 and 9-12 are comparative (*see*, column 21, lines 56-58)), calcium carbonate filler, which has been modified with a silicone glycol surfactant, is compounded with the resin (in each case an ethylene-octene-1 copolymer), *i.e.*, the source material, that forms the film.

It is well-understood by a person of ordinary skill in the art that a film layer having additional materials compounded therein is structurally distinct from a film layer having a

composition coated thereon. Thus, the recitation in the present claims that the silicone glycol composition is a coating on a surface layer is sufficient to distinguish the claimed film from the films of Topolkaraev. This distinction between coatings on a layer and materials compounded into a layer is also reflected by the manner in which the Topolkaraev specification quantifies the amount of compounded materials in its film layer and the manner in which the present specification quantifies the amount of silicone glycol composition coated onto the claimed surface layer. Specifically, whereas Topolkaraev discloses that the filler content may range from 30 wt% to 65 wt%, the present specification states an exemplary coating weight of from about 0.01 to 0.3 g/m<sup>2</sup>.

#### Compositional Distinction

In its disclosure of additives and supplemental materials, such as surfactants, Topolkaraev discloses acrylic acid, carboxylated alcohol ethoxylates, various ethoxylated alcohols, ethoxylated alkyl phenols, ethoxylated fatty esters, silicone glycol copolymers and combinations thereof (*see*, column 7, lines 33-36 and column 8, lines 11-45). Therefore, assuming, *arguendo*, that the compounded materials of Topolkaraev were somehow equivalent to the claimed coatings, Topolkaraev would still fail to disclose or suggest a composition consisting essentially of a silicone glycol composition.

In this regard, the description at page 20, lines 6-10 of the specification explains that the claimed coating material is essentially free of materials other than silicone glycol, such as acrylic coatings and sorbitants of an ester of a fatty acid surfactant, in forms and amounts which substantially hinder the ability of the silicone glycol coating to promote drying of ink applied to the coated film. This interpretation of the claimed coating is supported by the present inventive (Example 12) and comparative (Examples 1-11) Examples. Thus, Topolkaraev actually suggests the inclusion of materials that the present specification has shown hinders the ability of the silicone glycol coating to promote drying of ink applied to the coated film.

No Suggestion To Modify

In short, Topolkaraev does not disclose, suggest, or otherwise render obvious each and every element of the biaxially oriented film as presently claimed. In addition to the distinctions noted above, it must also be recognized that the source material exemplified in Topolkaraev's examples is either polypropylene or an ethylene-octene-1 copolymer. Topolkaraev is silent with respect to high density polyethylene.

Topolkaraev, moreover, provides no motivation to modify its disclosure to arrive at the claimed invention.

In this regard, Topolkaraev is directed to applications that are distinct from the present films useful for ink jet printing, such as surgical gowns and flushable products, including diapers, training pants, tampons, feminine pads, pantliners, etc. (*see*, column 4, lines 5-9).

It is only with the benefit of Applicants' disclosure that one would come to understand that the provision of a coating consisting essentially of a silicone glycol composition on a porous HDPE surface layer would lead to an improved film for ink jet printing exhibiting improved ink jet printer ink drying times.

For each of the foregoing reasons, Applicants respectfully request that the Examiner reconsider and withdraw this §103 rejection.

**III. Paragraph No. 4: Rejection Under 35 U.S.C. § 103**

Claims 1-8 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 5,650,451 to Yagi, *et al.* ("Yagi") in view of U.S. Patent No. 5,985,793 to Sandbrink, *et al.* ("Sandbrink").

**Applicants' Response**

Applicants respectfully traverse.

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At column 15, lines 10-30, Yagi discloses that its films may be surface-modified by subjecting them to surface treatments, such as corona, plasma or electron radiation treatments, or by polymerizing a vinyl monomer having a hydrophilic group on the surface of the film. The Examiner has apparently taken the position that the latter method, which comprises the application of a vinyl monomer having a hydrophilic group on the surface of the film and then electron ray irradiating the film, may be substituted with a coating of a surfactant taught by Sandbrink.

Applicants respectfully disagree.

A proper analysis under §103 requires, *inter alia*, consideration of whether the prior art would have suggested to those of ordinary skill in the art that the prior art should be modified in order to arrive at the claimed invention. It is essential that the Examiner find some motivation or suggestion to make the claimed invention in light of the prior art teachings. The mere possibility that the prior art may be modified so as to arrive at the claimed invention does not render obvious the invention unless the prior art suggested the desirability of such a modification. Indeed, the suggestion to modify must be "clear and particular" (*see, In re Sang Su Lee*, 2002 U.S. App. LEXIS 855 (Fed. Cir. 2002); *Winner Int'l Royalty Corp. v. Ching-Rong Wang*, 53 USPQ2d 1580, 1586-1587 (Fed. Cir. 2000)).

In the present case, there is no clear and particular suggestion to replace Yagi's vinyl monomer polymerization step with a coating of a surfactant taught by Sandbrink.

First, a method that involves the step of polymerizing a polymerizable monomer *in-situ* on a film layer is vastly different from a film layer having a coating applied thereon.

For example, Yagi discloses the following as concrete examples of its monomer: unsaturated carboxylic acids, such as acrylic acid and methacrylic acid, carboxylic acid vinyl esters, such as vinyl acetate, and mixtures thereof (*see*, column 15, lines 25-30). A reasonable interpretation of Yagi is that if its monomer is to be substituted with a different compound, the substitute compound would also be polymerized *in-situ*. Yagi provides no suggestion to omit the *in-situ* polymerization as well as to substitute the monomer being *in-situ* polymerized.

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Furthermore, acrylic acid, which is a concrete example disclosed by Yagi, is identified in present comparative Examples 7-10 as a compound that hinders the ability of the silicone glycol coating to promote drying of ink applied to the coated film. The combined disclosures of Yagi and Sandbrink provide no motivation to employ a silicone glycol copolymer to the exclusion of acrylic acid.

Applicants also disagree with the assertion that it would have been obvious to have imported the surfactant of Sandbrink into the disclosure of Yagi. The mere possibility that the prior art may be modified so as to arrive at the claimed invention does not render obvious the invention unless the prior art suggested the desirability of such a modification. Sandbrink, which is directed to a method of treating plants, does not at all provide a suggestion to modify or a reasonable expectation of success with regard to the use of the surfactants disclosed therein on a biaxially oriented polymer film.

Still further, it is only with the benefit of Applicants' disclosure that one would come to understand that the provision of a coating consisting essentially of a silicone glycol composition on a porous HDPE surface layer would lead to an improved film for ink jet printing exhibiting improved ink jet printer ink drying times. Indeed, the combined disclosures of Yagi and Sandbrink simply fail to amount to a suggestion that the coating must consist essentially of a silicone glycol composition.

Finally, the achievement of an unexpected result is evidence of nonobviousness. In the present case, it is completely unexpected from the combined disclosures of Yagi and Sandbrink that the provision of a coating consisting essentially of a silicone glycol composition on a porous HDPE surface layer would lead to improved ink jet printer ink drying times.

Regarding new claim 9, it is directed to an embodiment of the invention wherein the porous high density polyethylene HDPE surface layer is substantially free of high molecular weight polyethylene. As explained from page 10, line 20 through page 11, line 3, it is believed that this particular embodiment of the invention is clearly distinguished from the disclosure of Yagi.

In view of the foregoing, Applicants respectfully request that the Examiner reconsider and withdraw this §103 rejection.

**IV. Paragraph No. 5: Rejection Under 35 U.S.C. § 103**

Claims 1 and 5 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 6,022,677 to Bourdelais, *et al.* ("Bourdelais") in view of Sandbrink.

**Applicants' Response**

Applicants respectfully traverse.

The presently claimed biaxially oriented film comprises (i) a porous HDPE surface layer and (ii) a coating thereon, the coating consisting essentially of a silicone glycol composition. As explained by the description at page 20, lines 6-10 of the specification, the claimed coating material is essentially free of materials other than silicone glycol, such as binders, *e.g.*, PVOH, in forms and amounts which substantially hinder the ability of the silicone glycol coating to promote drying of ink applied to the coated film. This interpretation of the claimed coating is supported by the present inventive (Example 12) and comparative (Examples 1-11) Examples.

A proper analysis under §103 requires, *inter alia*, consideration of whether the prior art would have suggested to those of ordinary skill in the art that the prior art should be modified in order to arrive at the claimed invention. It is essential that the Examiner find some motivation or suggestion to make the claimed invention in light of the prior art teachings. The mere possibility that the prior art may be modified so as to arrive at the claimed invention does not render obvious the invention unless the prior art suggested the desirability of such a modification. Indeed, the suggestion to modify must be "clear and particular" (*see, In re Sang Su Lee*, 2002 U.S. App. LEXIS 855 (Fed. Cir. 2002); Winner Int'l Royalty Corp. v. Ching-Rong Wang, 53 USPQ2d 1580, 1586-1587 (Fed. Cir. 2000)).

The combined disclosures of Bourdelais and Sandbrink do not disclose or suggest, and certainly do not provide a "clear and particular" suggestion of, a film comprising (i) a porous

HDPE surface layer and (ii) a coating thereon, the coating consisting essentially of a silicone glycol composition.

First, the general structure of Bourdelais' imaging element must be noted. Bourdelais suggests an imaging element comprising (1) a paper base, (2) at least one photosensitive silver halide layer, (3) a layer of biaxially oriented polymer sheet between said paper base and said silver halide layer, and (4) a biaxially oriented polymer sheet on the opposite side of the paper base from the imaging layer (*see*, column 2, line 62 through column 3, line 3).. Thus, the structure of Bourdelais' imaging element is (4)/(1)/(3)/(2).

Bourdelais' so-called "topside" polymer sheet (3) (*see*, column 3, lines 57-63), which is disclosed from column 3, line 64 through column 7, line 27, is not equivalent to the presently claimed porous HDPE surface layer for the simple reason that Bourdelais' topside polymer sheet (3) is not a surface layer. At the very least, the topside polymer sheet (3) has the photosensitive silver halide layer (2) disposed thereon (in addition, Bourdelais suggests that the microvoided core layer of the sheet (3) has a solid skin layer thereon (*see*, column 7, lines 24-26, as acknowledged by the Examiner)).

As for Bourdelais' so-called "backside" sheet (4), Bourdelais clearly teaches away from it being the presently claimed porous HDPE surface layer having a coating thereon consisting essentially of a silicone glycol composition.<sup>1</sup> At column 10, line 31, Bourdelais clearly teaches that the backside sheets are coated with any number of coatings, including acrylic coatings. As demonstrated by a comparison of present inventive Example 12 and present comparative Examples 7-10, however, the presence of an acrylic coating hinders the drying time of the ink from the ink jet printer.

Because Bourdelais teaches that the backside sheets are coated with any number of coatings, and in fact suggest coatings, such as acrylic coatings, that hinder the drying time of the

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<sup>1</sup> It is well-settled that a prior art reference must be considered in its entirety, *i.e.* as a whole, and any portions therein that would lead away from the claimed invention are evidence of nonobviousness (*see*, W.L. Gore & Assoc. v. Garlock, Inc., 220 USPQ 303 (Fed. Cir. 1983)).



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ink from the ink jet printer, the combined disclosures of Bourdelais and Sandbrink simply fail to amount to a suggestion that the coating must consist essentially of a silicone glycol composition. Indeed, the suggestion of a coating consisting essentially of a silicone glycol composition is found only within the present application, and is not suggested by the prior art.<sup>2</sup>

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Still further, Applicants respectfully disagree with the assertion that it would have been obvious to have treated the surface of a biaxially oriented film with the surfactant of Sandbrink. As stated earlier, the mere possibility that the prior art may be modified so as to arrive at the claimed invention does not render obvious the invention unless the prior art suggested the desirability of such a modification. Sandbrink, which is directed to a method of treating plants, does not at all provide a suggestion to modify or a reasonable expectation of success with regard to the use of the surfactants disclosed therein on a biaxially oriented polymer film.

Finally, the achievement of an unexpected result is evidence of nonobviousness. In the present case, it is completely unexpected from the combined disclosures of Bourdelais and Sandbrink that the provision of a coating consisting essentially of a silicone glycol composition on a porous HDPE surface layer would lead to improved ink jet printer ink drying times.

For the foregoing reasons, Applicants respectfully request that the Examiner reconsider and withdraw this §103 rejection.

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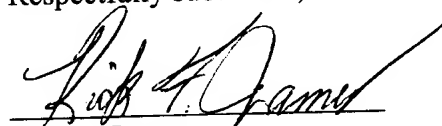
<sup>2</sup> The teaching or suggestion to make the claimed combination and the reasonable expectation of success must be found in the prior art, and not based on Applicants' disclosure (*see*, MPEP § 2143 and *In re Vaeck*, 20 USPQ2d 1438 (Fed. Cir. 1991)).

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V. Conclusion

Reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Rick F. James", written over a horizontal line.

Rick F. James

Registration No. 48,772

Exxon Mobil Chemical Company  
4500 Bayway Drive  
Baytown, Texas 77520-9728  
Phone: (281) 834-2438

**APPENDIX**

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE SPECIFICATION:**

**The specification is changed as follows:**

**Page 6, sixth full paragraph (lines 21-28):**

Methods for making films with a surface layer with an open cell pore structure are described in U.S. Application Serial No. 09/079,807, filed May 15, 1998, now abandoned. According to this method a cavitating agent is used with a particular polymeric matrix material, which may be high density polyethylene (HDPE). When this material is stretched, separations which form voids are formed not only horizontally, i.e. within or parallel to the plane of the film, but also in the vertical dimension or perpendicular to the plane of the film.

**IN THE CLAIMS:**

**Claim 9 is added as a new claim.**